Amendments to the Claims:

The listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently amended): A very narrow band two chamber high repetition rate gas discharge laser system comprising:

A) a first laser unit comprising:

1) a first discharge chamber containing;

a) a first laser gas

b) a first pair of elongated spaced apart electrodes defining a first discharge region in which first laser gas discharges occur, each producing a first laser output light pulse,

2) a first fan producing sufficient gas movement of the first laser gas in the first discharge region to clear from the first discharge region, following each discharge, substantially all discharge produced ions prior to a next discharge when operating at a discharge repetition rate in the range of 4,000 discharges per second or greater,

3) a first heat exchanger system removing heat energy from the first laser gas,

4) a line narrowing unit narrowing the spectral bandwidth of the first laser light output pulses produced in the first discharge chamber,

B) a second laser unit comprising:

1) a second discharge chamber containing:

a) a second laser gas,

b) a second pair of elongated spaced apart electrodes defining a second discharge region in which

second laser gas discharges occur, each producing a second laser output light pulse;

2) a second fan producing sufficient gas movement of the second laser gas in the second discharge region to clear from the second discharge region, following each discharge, substantially all discharge produced ions prior to a next discharge when operating at a discharge repetition rate in the range of 4,000 pulses per second or greater,

3) a second heat exchanger system removing heat energy from the second laser gas,

C) a pulse power system providing electrical pulses to the first pair of electrodes and to the second pair of electrodes sufficient to produce first and second laser output light pulses at rates of about 4,000 laser output light pulses per second with controlled pulse energies comprising;

1) a DC power supply

2) a first ~~commentator~~ commutator module comprising:

a) a first charging capacitor electrically connected to the DC power supply;

b) a first switch periodically switching the energy stored on the first charging capacitor into a first pulse compression circuit electrically connected to the first charging capacitor;

c) a first multi-core fractional turn voltage step-up transformer electrically connected to the first pulse compression circuit;

3) a first pulse compression head module comprising:

a) a second pulse compression circuit electrically connected to the first voltage step-up transformer;

b) a first pulse capacitor electrically connected to the second pulse compression circuit and electrically connected across the first pair of spaced apart electrodes;

4) a second commutator module comprising:

a) a second charging capacitor electrically connected to the DC power supply;

b) a second switch periodically switching the energy stored on the second charging capacitor into a third pulse compression circuit electrically connected to the second charging capacitor;

c) a second multi-core fractional turn voltage step-up transformer electrically connected to the third pulse compression circuit;

5) a second compression head module comprising:

a) a fourth pulse compression circuit electrically connected to the second voltage step-up transformer;

b) a second peaking capacitor electrically connected to the second pulse compression circuit and electrically connected across the second pair of spaced apart electrodes; and,

D) a laser beam measurement and control system measuring at least one of the pulse energy, wavelength or bandwidth of the second laser output light pulses and controlling the second laser output light pulses with a feedback control.

2. (Previously presented): A laser system as in Claim 1 wherein the first laser unit is a master oscillator and the second laser unit is a power amplifier.

3. (Previously presented): A laser system as in Claim 2 wherein the laser gas comprises argon, fluorine and a buffer gas.

4. (Previously presented): A laser system as in Claim 2 wherein the laser gas comprises krypton, fluorine and a buffer gas.

5. (Previously presented): A laser system as in Claim 2 wherein the laser gas comprises fluorine and the buffer gas is chosen from a group consisting of neon, helium or a mixture of neon and helium.

6. (Previously presented): A laser system as in Claim 2 wherein the power amplifier achieves amplification at least in part due to two beam passes through the second discharge region.

7. (Previously presented): A laser system as in Claim 2 wherein the power amplifier achieves amplification due to at least four beam passes through the second discharge region.

8. (Previously presented): A laser as in Claim 2 wherein the master oscillator comprises a resonant path making two passes through the first discharge region.

9. (Previously presented): A laser as in Claim 2 wherein the master oscillator comprises a resonant path making two passes through the first discharge region and wherein the power amplifier comprise a path for at least four beam passes through the second discharge region

10.-26. (Canceled)

27. (Currently amended): A laser as in Claim 1 wherein the pulse power ~~power~~ system comprises water cooled electrical components.

28. (Previously presented): A laser as in Claim 27 wherein at least one of the water cooled components is a component operated at high voltages in excess of 12,000 volts.

29. (Previously presented): A laser as in Claim 28 wherein the high voltage is isolated from ground using a water cooled inductor.

30. (Currently amended): A laser as in Claim 1 wherein the ~~the~~ DC power supply comprises a resonant charging system to charge the charging capacitor first and the second to a precisely controlled voltage.

31. (Previously presented): A laser as in Claim 30 wherein the resonant charging system comprises a De-Qing circuit.

32. (Previously presented): A laser as in Claim 30 wherein the resonant charging system comprises a bleed circuit.

33. (Previously presented): A laser as in Claim 30 wherein the resonant charging system comprises a De-Qing circuit and a bleed circuit.

34. (Previously presented): A laser as in Claim 1 wherein the pulse power system comprises a charging system comprised of at least three power supplies arranged in parallel.

35.-59. (Canceled)

60. (Previously presented): A laser system as in Claim 1 wherein substantially all components are contained in a laser enclosure but the system comprises an AC/DC module physically separate from the enclosure.

61. (Previously presented): A laser system as in Claim 1 wherein the pulse power system comprises a master oscillator charging capacitor bank and a power amplifier charging capacitor bank and a resonant charger configured to charge both charging capacitor banks in parallel.

62. (Previously presented): A laser as in Claim 19 wherein the pulse power system comprises a power supply configured to furnish at least 2000V supply to the resonant charging system.

63.-64. (Canceled)

65. (Previously presented): A laser as in Claim 2 and further comprising a discharge timing controller for triggering discharges in the power amplifier to occur between 20 and 60 ns after discharges in the master oscillator.

66. (Previously presented): A laser as in Claim 2 and further comprising a discharge timing controller programmed to cause in some circumstances discharges so timed to avoid any significant output pulse energy.

67. (Previously presented): A laser as in Claim 66 wherein the discharge timing controller in some circumstances is programmed to cause discharge in the power amplifier at least 20 ns prior to discharge in the master oscillator.